

Claims

- [c1] 1. An apparatus used for detecting the rotation of a bicycle part, wherein the apparatus comprises:
a casing member comprising:
a generally annular body structured to be mounted to the bicycle part so that the annular body is incapable of rotating relative to the bicycle part as the bicycle part rotates in opposite directions around a rotational axis, wherein the annular body includes a plurality of circumferentially disposed exposed magnet mounting portions that are concentric with respect to the rotational axis; and
a cover member detachably mounted to the annular body for blocking the plurality of magnet mounting portions.
- [c2] 2. The apparatus according to claim 1 further comprising a plurality of magnets correspondingly mounted in the plurality of magnet mounting portions.
- [c3] 3. The apparatus according to claim 1 wherein the cover member rotates together with the annular body.
- [c4] 4. The apparatus according to claim 1 wherein the casing

member is made from a nonmagnetic material.

- [c5] 5. The apparatus according to claim 4 wherein the casing member is made from a synthetic resin.
- [c6] 6. The apparatus according to claim 1 wherein the cover member completely covers the plurality of magnet mounting portions.
- [c7] 7. The apparatus according to claim 1 wherein the annular body is structured to be securely fixed to the bicycle part so that the annular body is incapable of rotating relative to the bicycle part.
- [c8] 8. The apparatus according to claim 7 wherein the annular body is structured to be securely fixed to the bicycle part so that the annular body is incapable of axial movement relative to the rotating part.
- [c9] 9. The apparatus according to claim 8 wherein the annular body is structured to be bolted to the bicycle part.
- [c10] 10. The apparatus according to claim 1 wherein the cover member is latched to the annular body.
- [c11] 11. The apparatus according to claim 1 wherein the casing member is structured to be directly mounted to a crank arm.

- [c12] 12. The apparatus according to claim 11 wherein the casing member is structured to be directly mounted to a crank axle mounting boss of the crank arm.
- [c13] 13. The apparatus according to claim 12 wherein the casing member is structured to be directly bolted to the crank axle mounting boss of the crank arm.
- [c14] 14. The apparatus according to claim 12 wherein the annular body comprises:
a tube portion structured to be mounted around an outer peripheral surface of the crank axle mounting boss; and
a ring portion structured to be mounted around an end face of the crank axle mounting boss.
- [c15] 15. The apparatus according to claim 14 wherein the ring portion includes a plurality of holes for receiving a corresponding plurality of bolts therethrough.
- [c16] 16. The apparatus according to claim 1 further comprising a stopper member for fixing the annular body to the bicycle part.
- [c17] 17. The apparatus according to claim 16 wherein the stopper member is structured to fit radially inwardly of the annular body.
- [c18] 18. The apparatus according to claim 17 wherein the

stopper member comprises:

a tubular portion structured to fit radially inwardly of the annular body; and

a flange portion that axially retains the annular body.

- [c19] 19. The apparatus according to claim 18 wherein the stopper member further comprises a latching portion structured to fit within a stopper groove formed in the bicycle part.
- [c20] 20. The apparatus according to claim 1 further comprising a magnetic sensor structured to be mounted to a part of the bicycle.
- [c21] 21. The apparatus according to claim 20 wherein the part of the bicycle is one of a front fork, a back fork or a chainstay of the bicycle.
- [c22] 22. The apparatus according to claim 21 wherein the bicycle part is a wheel hub.